

planet with one of Mr. Browning's excellent achromatic eye-pieces, when I saw two exceedingly bright spots on the crescent—one close to the terminator, towards the eastern horn, and the other in the centre of the crescent. These spots appeared like two drops of dew; they were glistening in such a manner as to cause the surrounding parts of the bright crescent to appear dull by contrast. (See Sketch, No. 2.) Cloudy weather prevented me seeing the planet again until the 19th, when the spots had disappeared, but the planet on this occasion was seen through the aurora, and the irregular and uneven appearance of the terminator was most beautifully depicted. The whole body of the planet also was distinctly visible. (See Sketch, No. 3.)

*Positions of the Radiant Point of the Meteor Shower of
Nov. 27th, 1872. By Prof. Herschel, F.R.A.S.*

In continuation of the results communicated in a former list,* I have received from many correspondents, and in some cases from original observers of the shower particulars relating to the position of the radiant point of the meteors seen or recorded during the display of the 27th of November last. With the exception of a few additional observations contained in the present list, all the radiant positions contained in this, and in the foregoing list, are represented in the map accompanying the General Reports of the Society on the Progress of Astronomy during the past year †; and the successive numbers of the following radiant points are continued from those of the previous list in the *Monthly Notices* of December last. The addition of several new radiant-points, chiefly derived from Signor F. Denza's memoir on the shower as seen in Italy, and at many favourably situated places in Europe and America, introduces no very sensible alteration in their general grouping on the map; but for the more ready comparison of their positions the accompanying diagram exhibits eighty-two places of the radiant point that are sufficiently well described in these observations to be represented in each case by a definite or single point.‡

* These *Notices*, vol. xxxiii. p. 77.

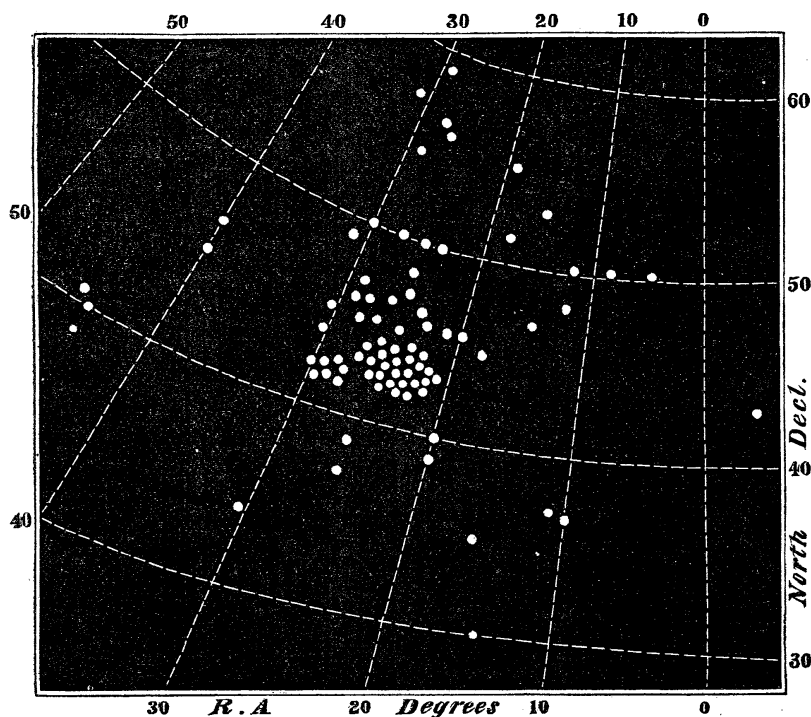
† These *Notices*, vol. xxxiii. p. 255.

‡ Eight new and equally definite positions (marked with duplicate reference numbers in the list) are not contained in this map; but all the radiant positions marked with an asterisk * (68 observations in this list and 22 in the foregoing one) are included in the following average results. Radiant positions included between brackets, thus [$20^{\circ} + 45^{\circ}$], are approximate positions only, described by the constellations, and they are not inserted in the figure nor included in the mean results. All the radiant places in the former list were well determined points, but certain corrections in them are required which may be thus briefly enumerated,—

No. 1 (at ξ Cassiopeiæ) an outlying radiant only; noted by Mr. Wood, the

The region in which they appear to be most closely concentrated is round a point in about R.A. 24° or 25° , N. Decl. 43° ; extending with a slight and perhaps scarcely sensible elongation in R.A. between the meridians of 22° and 28° , and the circles of N. Decl. 42° and 44° . This area, which although not quite extending to it, may yet be regarded as including the many adjacent positions described simply as "*at the star γ Andromedæ*" R.A. 29° , N. Decl. 42° ; Nos. 20, 21, 74, 75, 76, 77, 79), contains nearly two-fifths (35) of the whole number (90) of the accurate observations in the list. Another fourth part (22 observations) is contained within the same ten-degree square (extending chiefly north and east of this area) of R.A. and N. Decl.; while the remaining 33 observations are scattered without apparent preference in various

Eighty-two Observed Positions of the Radiant-point of the Meteor Shower of the 27th of November, 1872; showing the principal Radiant region.



directions, and at considerably greater distances round the central region. The average right ascensions and north declinations of

principal radiant point which he determined being included (No. 39) in the present list.

No. 11. The position observed by Prof. Grant alone (see this vol. p. 79) was at R.A. 26° , N. Decl. 44° . A radiant position was also obtained independently by Prof. Forbes which is inserted separately (No. 53) in this list. In Nos. 12, 18, " *ϕ Andromedæ*" should be *ϕ Persei*, and " *γ Andromedæ*" $\frac{1}{2}$ (*γ Andromedæ*, *ϕ Persei*.) The R.A. of *γ Andromedæ* in Nos. 20, 21, should be 29° .

No. 19 is superseded, in the present list by the two more carefully observed positions, Nos. 70, 78, of the Bordeaux observers.

these groups of radiant points, giving equal weights to all the observations are as follows,—

Central region	R.A. 25°·1	N. Decl. 42°·9	(35 obs.)
Adjacent (north-eastern) region	„ 25 ·9	„ 46 ·7	(22 obs.)
Region of scattered radiants ..	„ 23 ·0	„ 45 ·3	(33 obs.)

There does not appear to have been any progressive motion of the radiant-point during the visibility of the shower, the same general distribution of the radiant region round the same centre being, for example, observed in the United States of America as in Europe, although the phase of the shower recorded there occurred five hours later than that generally observed in Europe; and an entire want of agreement in the descriptions of some observers who especially directed their attention towards that point equally removes the suspicion that two definite centres of divergence, like those which the two portions of Biela's comet might produce, or rectilinear, or curvilinear areas of radiation represented the general character of the divergence. But if one half of the seven observations at γ *Andromedæ* are regarded as belonging to the central radiant, and the other half to an apparently thickly strewed region near it, the average centre of the former, or principal radiant, will be at R.A. 24°·7, N. Decl. 43°·3, and that of the less concentrated adjacent radiant points is found to be at R.A. 26°·3, N. Decl. 46°·1, about 3° distant from the former one in a direction about 20° east from north, thus favouring the supposition of a companion radiant point not exactly coinciding in its position with the general direction of elongation of the central group in an east and west direction, nor nearly so distinctly marked, but apparently consisting rather of a considerable diffuseness of the principal radiant region in a particular direction, which was most frequently recorded by the observers on its northern or north-eastern side. On the other hand, the near coincidence of the central group with the average position of the outlying radiant points shows that the general centre of divergence of the least conformable meteors was not sensibly distinguishable from that of the meteoric stream forming the main body of the shower.

Most of the observers of its appearance having been unprepared for the occurrence, and being accordingly unlikely to record their observations with more than ordinary precision, the result of a general comparison of the observations (without assigning particular weights to them) is less likely to err, in this instance greatly, than would be the case with preconceived observations of an anticipated shower. The mean coordinates of all the 90 definite observations in the list, in right ascension and declination, will thus perhaps present as near an approximation to the real position of the radiant point as a carefully selected

number of all the best observations in this list would certainly be able to afford. The position obtained by thus impartially combining together in a common average all the foregoing observations recorded with sufficient accuracy to be given in the list as single points, is at R.A. $24^{\circ}54$, N. Decl. $44^{\circ}74$; and it appears to differ chiefly from the place of the central group, as found above, by the preponderance of several radiant points on the northern side of that group presenting the appearance of greater diffuseness of the radiation there, or of a more scattered radiation on the north than on the south side of the stream, to which the descriptions of several of the observers drew attention in their notes.

It should be noticed that sufficient particulars are in many cases given by the observers to enable a selection to be made of the most accurate observations in the present list; and the average radiant point so obtained would be affected by much smaller mean errors of the observations, and by a less considerable probable error of the result than the position now assigned to it. The mean error of the observations here employed is about $5^{\circ}4$; while, on account of the great number of the observations, the probable error of the average position, in distance from the true radiant point (if no special bias generally affected the observations*), amounts, almost exactly, to only half a degree.

Should extensions and diffuseness of the radiant region in particular directions, like those now indicated, present themselves in future returns of the shower with sufficient distinctness to be accurately observed, such observations will tend to throw much light on the real nature of the process by which (more rapidly perhaps than ordinarily-constituted meteor-showers, on account of its easily deflected orbit, and of the singular events of its previously-recorded cometary history) the star-shower of Biela's comet is undergoing dissolution of its substance, and is doubtless giving place to a highly complicated meteor-system. A better discrimination of the individual values of the recorded positions of the radiant point will also be an important subject of inquiry, in order to arrive at exact results, which from the novelty of all the circumstances connected with the recent meteoric shower, has not yet been definitely concluded for the many excellent observations here described, but which in a future communication on the fur-

* A few of the observers appear to have regarded the shower as allied or related to that of the August meteors, from the neighbourhood (within about 15°) of its radiant point to that of the "Perseids," and from its great distance (about 90°) from that of the "Leonids," or meteors of the earlier November star-shower; and to have described its position accordingly as roughly between *Perseus* and *Cassiopeia*, or more simply in *Perseus*. This impression, however, belonged exclusively to a few of the observers who noted the position of the radiant point very roughly by the constellations, and it does not appear to have guided the determinations of any observers towards those constellations who fixed its position approximately or exactly by a well-defined point in the accompanying list of their observations as employed to arrive at the above average result.

ther progress of this investigation it will be attempted to supply more fully, and as far as possible with all the certainty and precision that the observations will permit.

In the general remarks appended to the observations collected in the accompanying table, the references to the original sources from which they have been principally derived are expressed by the following abbreviations. I am indebted to the authors of several valuable memoirs on the appearances of the star-shower in their respective countries for the opportunity to consult many such original descriptions, and to verify the accounts of them which have occasionally appeared elsewhere; and I gladly avail myself of this occasion to record my obligations to Messrs. Denza, Heis, Wolf, Galle, and Prof. Newton, for the invaluable assistance which they have thus afforded me. The following is a list of the abbreviations used to describe their Memoirs and a few other publications mentioned in the references of the table.

D.—Signor F. Denza's Memoir on Observations of the Star Shower in Italy (with particulars of many other foreign observations of the shower.) *Rendiconti del R. Istituto Lombardo*, vol. v. fasc. 20, Dec. 19, 1872 (8vo, 75 pages.)

H.—Prof. E. Heis' *Wochenschrift für Astronomie, Meteorologie, und Geographie*, Nos. 50, 51, 52; Dec. 11, 18, and 25, 1872. Descriptions of the shower received by Prof. Heis from astronomers and observers of shooting-stars in Germany, Denmark, and elsewhere (8vo, 24 pages.)

M. N., Nos. 2, 3, 6.—These *Notices* for Dec. 13, 1872, Jan. 10, and April 9, 1873, vol. xxxiii. pp. 89–98, 138, and 407.

N.—Observations upon the Meteors of November 24–27th, 1872; compiled by H. A. Newton; including descriptions of the meteors from observers at many stations in the United States of America. *American Journal of Science*, third series, vol. v. pp. 53–62; January, 1873.

S.—*Symons' Monthly Meteorological Magazine*, vol. vii. pp. 187–190, December, 1872.

T.—Descriptions of the Meteor Shower as seen at Palermo, and elsewhere in Sicily, by Prof. A. Tacchini. *Comptes Rendus*, Dec. 23, 1872; vol. lxxv. pp. 1788–1790.

V.—Descriptions of the Star Shower, principally as observed in France; communicated to the French Academy of Sciences, by M. Le Verrier. *Comptes Rendus*, Dec. 2, 1872; vol. lxxv. pp. 1552–1560.

W.—Notices of the Meteors of November 27th, 1872, by observers in Switzerland, compiled by Dr. R. Wolf. *Quarterly Notices of the Zurich Observatory*, December, 1872 (Extract, 4 pages, 8vo.)

List of Radiant Points of the Meteor Shower of November 27th, 1872.

[Continued from the Monthly Notices for December, 1872.]

N.B.—Radiants marked thus * (excepting the duplicate Reference Nos. entered in this list after the drawing was complete) are projected on the accompanying Map. References and Remarks on the Observations are contained in brackets, thus [*M. N.*, No. 2].

Ref. No.	Observer.	Place of Observation.	Local Time of Observations		Positions of the Radiant Points.	
			From	To	R.A. N. Decl.	By the nearest Fixed Stars.
23*	Prof. A. Hall	Washington, U.S.	6 25	8 0	355° 43'	Approx. place by projections on a globe [<i>A. J. S.</i>]
24	Ph. Breton	Grenoble, France	7 0	8 0	[0° 40']	Between Cassiopeia and the square of Pegasus [<i>C. R.</i> No. 23].
25	J. W. Durrad	Leicester	...	...	[0° 50']	South-west of Cassiopeia [communicated by Mr. W. F. Denning].
26	...	France	...	...	[10° 48']	South of Cassiopeia [ditto].
27	Mr. Watkins Old	Hereford	...	...	[10° 50']	A little south of Cassiopeia [ditto].
28*	Commander Wharton	Malta	at 7 45	10 37		Not far from the star β Andromedæ, nearly in the zenith at the time stated [<i>M. N.</i> , No. 3].
29*	Prof. Eastman	Washington, U.S.	after 8 0	12 38		Centre at μ Andromedæ; radiant area a circle 8° in diameter [<i>A. J. S.</i>]
30*	J. M. Wilson	Rugby	5 0	6 45	12 48	The principal centre; radiant area a triangle included between γ and ζ Andromedæ, and ξ Cassiopeia [<i>M. N.</i> , No. 2].
31*	G. H. H.	Birkenhead	5 30	10 0	12 50	South of μ Cassiopeia [communicated by Mr. W. F. Denning].
32*	B. V. Marsh	Philadelphia, U.S.	6 15	11 45	15 30	Principal radiant point, in a large radiant area [<i>A. J. S.</i> , see No. 94].
33*	Aug. Tacchini	Mazzarino, Sicily	at 9 30	15 53		[Near θ Cassiopeia; <i>C. R.</i> , No. 26.]
34*	A. D. P.	Newcastle-on-Tyne	6 0	6 30	16 35	At or close to Mirach [β Andromedæ, Local Newspaper; <i>A. S. H.</i>]

Ref. No.	Observer.	Place of Observation.	Local Time of Observations		Positions of the Radiant Points.	
			From	To	R.A.	N. Decl.
45*	Prof. S. Newcomb	Washington, U.S.	h m 6 50	h m 7 0	23°	41° 5'
46*	Prof. de Gasparis	Naples, Italy	...	about	23	43
47*	Herr Bornitz	Lichtenberg, Germany	...	about	23	43
48*	Prof. C. Bruno	Mondovi, Italy	...	6 18 14 15	23	44
49*	Herr Engelmann	Leipzig, Germany	...	Mean Hour of the Observations. { 8 32 }	22	43
50*	Herr Weinek	Leipzig, Germany	...		23° 3'	42° 8'
51*	Dr. Bruhns	Leipzig, Germany	...		23° 8'	44° 1'
52*	Prof. V. Eugenio	Matera, Italy	...		23° 5'	44
53*	Prof. G. Forbes	Glasgow, Scotland	...	7 0 10 0	23° 7'	46
54*	Prof. Respighi	Rome, Italy	...	7 15 9 54	24	46
55*	Prof. E. Heis	Münster, Germany	...	8 0 9 0	24	50
56*	E. Neu	Essen, Germany	...	...	24	50
57*	Prof. H. A. Newton	Newhaven, U.S.	...	6 38 8 48	24° 5'	43° 5'

By the nearest Fixed Stars.

Close to the star 50 [ν] Andromedæ; uncertainty of the position about 2°. Radiant less well defined after 7^h [A. J. S.]

Near γ [χ] Andromedæ [C. R., No. 23].

Provisional estimation of the radiant point near χ Andromedæ. Forty-six meteors mapped in 23^m [H.]

From 61 meteors mapped by Sig. Chiavarino [see No. 71. D.]

From courses of meteors mapped and projected by Herr Weinek. Mean position of the observations at R.A. 23°, N. Decl. 43° 3' [D.]

Near γ [or χ] Andromedæ. From courses of meteors mapped. Another radiant point by eye-estimations [see No. 91. D.]

From mapped courses of 112 meteors near the radiant point. One stationary at R.A. 25°, N. Decl. 46°. Radiation generally good [M. N., No. 6].

Near ν φ Persei; General radiation very exact [D.]

At φ Persei; halfway between γ Andromedæ and α Cassiopeïæ [H.]

Centre φ Persei; area a circle on the line joining γ Andromedæ and α Cassiopeïæ as diameter [H.]

Central radiant point. Area apparently 8° or 12° long in R.A., and at least half as broad in Decl. 14° 15' 51

58*	Lord Kosse	...	Birr Castle, Ireland	...	8 52	9 41	24·6	43·6	From 15 well-accordant meteor tracks mapped [<i>M. N.</i> , No. 2].
59*	Correspondent of Dr. Heis	...	Witten, Germany	...	6 30	10 0	25	42	Radiant in the latter part of the shower. A little west of γ Andromedæ [see No. 87; H.]
60*	Prof. A. C. Twining	...	Newhaven, U.S.	...	7 33	8 45	25	43	Central radiant point. Area 8° long in R.A., 3° broad in Decl. [<i>A. J. S.</i>]
61*	Prof. Lyman	...	Newhaven, U.S.	...	5 55	8 21	25	43	Centre of the radiant. Radiant most obviously scattered [<i>A. J. S.</i>]
62*	M. Rubenson	...	Christiania, Norway	...	about	9 0	25	47	In a late part of the watch [see No. 67. D.; letter from Prof. Mohn].
63*	Prof. Klinkerfues	...	Göttingen, Germany	...	7 30	10 30	26	37	From paths of 81 meteors mapped [H.]
64*	L. Swift	...	Rochester, New York, U.S.	...	10 0	11 0	26	39	In the latter part of the watch; at $\frac{1}{4}$ (γ , β) Andromedæ [see No. 76. <i>A. J. S.</i>]
65*	Mr. Barber	...	Derby	...	...	...	26	44	[<i>M. N.</i> , No. 2; Mr. Hind; radiant of Biela's Comet in 1866 at R.A. 251° , N. Decl. 42° .]
65a*	Dr. J. W. Moore	...	Dublin, Ireland	...	{ a few minutes after }		26	44	A short distance north west of Alnuch [γ] in Andromeda; first rough position at $5^h 50^m$, halfway between Cassiopeia and the Pleiades [S.]
66*	Prof. Fearulcy	...	Christiania, Norway	...	8 25	9 3	27	43	Centre of radiant; area a circle 3° in diameter [D.; letter from Prof. Mohn].
67*	Prof. Mohn	...	Christiania, Norway	...	about	8 30	27	45	Close to γ Andromedæ; in the early part of the watch [see No. 62. D.; ditto].
68	Herr Glauser	...	Sachseln, Switzerland	...	9 0	10 0	[27	56]	Between Perseus and Cassiopeia; radiant very distinct [W.]
69	W. B. Shorto	...	Suez, Egypt	...	...	...	[28	41]	General radiant centre between Aries, Perseus and Cassiopeia [communicated by Mr. W. F. Denning].
70*	G. Lespault	...	Bordeaux, France	...	5 0	11 0	28	46	About $\frac{1}{2}$ (γ , δ) Andromedæ [see also No. 78; omit No. 19 of the previous list; δ Androm. (ν Persei), apparently misprinted, δ Androm. in <i>Comptes Rendus</i> . C. R. No. 23.]

Ref. No.	Observer.	Place of Observation.	Local Time of Observations			Positions of the Radiant Points.			By the nearest Fixed Stars.
			h	m	s	R.A.	N. Decl.		
71*	Prof. C. Bruno	... Mondovi, Italy	6	50	14	0	28	45	At $\frac{1}{2}$ (γ Andromedæ, ϕ Persei); by repeated eye-estimations during the watch; radiant perhaps double [see No. 48; ϕ appears misprinted, γ Persei. D.]
72	H. W. Hollis	... Newcastle, Staffordshire	7	40	8	17	[28	55]	Between Perseus and Cassiopeia, <i>The Times</i> , Nov. 30, 1872.
73*	Correspondent of Dr. Heis	Pöblitz, Zwickow, Germany	5	0	10	0	28	55	In Perseus [near α Persei]; carefully observed; radiant area a circle of 2° or 3° radius round this point [H.]
74*	L. Swift	... Rochester, New York, U.S.	9	0	10	0	29	41.8	Exactly at γ Andromedæ, during the early part of the watch [see No. 63. <i>A. J. S.</i>]
75*	W. C. Taylor	... Haddonfield, New York, U.S.	7	0	8	0	29	42	Best general position at γ Andromedæ [<i>A. J. S.</i>]
76*	Prof. Dorna	... Turin, Piedmont, Italy	6	0	9	0	29	42	Radiant at γ Andromedæ [D.]
77*	S. Tromholdt	... Svanholmünde, Jutland, Denmark	7	30	11	30	29	42	At or close to γ Andromedæ [H.]
77a*	A. Forbes	... Culloden, Inverness, Scotland	6	0	10	20	29	44	Between Perseus and Cassiopeia, and only 2° or 3° north of Almach [γ] in Andromeda [S.]
78*	M. Glotin	... Bordeaux, France	5	0	9	30	29	47	[Nearly between γ Andromedæ and ν ϕ Persei (51, 54 Andromedæ); see No. 70. <i>C. R.</i> , No. 23.]
79*	Correspondent of Prof. Heis	Dantzic, Germany	5	30	10	0	30	42	Well-observed position near γ Andromedæ [H.]
80*	Prof. Them. Zona	... Caltanissetta, Sicily	10	0	14	15	30	44	Exact place of radiant [adopted in this synopsis] near γ Andromedæ [letter from Prof. Zona; D.]
81*	N. von Konkoly	... O'Gyalla Komorn, Hungary	7	30	10	0	30	45†	Near γ Andromedæ; from map of meteor-tracks [apparently a provisional place. T.] Centre of the radiant; $\pm 2^\circ$ in R.A. and $\pm 5^\circ$ in Decl.; radiant space the triangle formed by γ Andromedæ, ϕ Cassiopeia, and ν ϕ Persei.

82*	M. Lemosy	...	Macon, France	...	10 45	13 0	30	50	Principal centre well marked near γ , 54 Andromedæ; fixed throughout the shower; radiant area between Perseus, Cassiopeia, and Andromeda [<i>C. R.</i> , No. 23].
83	A. Secchi	...	Rome, Italy	...	8 0	9 0	[31	29]	Well-defined region between Aries, Triangulum, and Musca [D.]
84*	A. Secchi	...	Rome, Italy	...	about at	9 0	31	34	A small area 2° or 3° diameter near β , γ Trianguli [ibid].
85*	A. Secchi	...	Rome, Italy	...	at	11 0	31	57	Near α Persei; lasting but a short time [ibid].
86	A. Secchi	...	Rome, Italy	...	12 0	13 0	[35	38]	Midway between Triangulum and Caput Medusæ [ibid].
87*	Correspondent of Dr. Heis	...	Witten, Germany	...	5 30	6 30	31	49	Between θ and ϕ Persei; in the early part of the watch [see No. 59. II.]
87a*	R. Tyrer	...	Mansfield, Notts.	From dusk [5 0]	11 0	32	57		Near the great cluster [α] in Perseus [S.; MS. note].
88*	Prof. Ign. Galli	...	Velletri, Italy	...	7 0	12 0	40	45	Centre of a rather wide radiant; area between α , β Persei, and γ Andromedæ [D.]
89*	Prof. Tacchini	...	Palermo, Sicily	...	at	11 0	40.1	46.5	[Near θ Persei.] From the courses of short meteors only near the radiant [T. and D.]
90*	Prof. Boltshausen	...	Catania, Sicily	...	about	8 0	44	40	In Perseus, principally about the head of Medusa [β Persei. T. and D.]
91*	Prof. V. Eugenio	...	Matera, Italy	...	10 0	10 30	44	38.5	ϵ Persei. From careful eye-estimates of the meteor-flights descending thence vertically, few appeared unconformable to that point [see No. 52. D.]
92*	M. Courtois	...	Muges, Lot et Garonne, France	5 0	11 0	45	40.5		Radiant round Algol [<i>C. R.</i> , No. 23].
93	M. Alby	...	Girgenti, Sicily	...	at	8 0	52	35	[Near south foot of Perseus; T.] A wide circle on a line from Cassiopeia to Orion comprised the radiant area [<i>C. R.</i> , No. 23].

† In Prof. Denza's Memoir the Decl. is printed 55° ; but this is outside the triangular space described as the radiant area.

Positions of the Radiant Points.
By the nearest Fixed Stars.
About 5° W.N.W. of the zenith (Patras, lat. 38° 17', long. 21° 46') at midnight [in Perseus. S.]

Ref. No.	Observer.	Place of Observation.	Local Time of Observations		R.A.	N. Decl.
			From	To		
			h m	h m		
93a	H. A. Boys	Patras, Greece	10 30	12 0	60	40

Positions of Radiant Areas.

94	B. V. Marsh	Philadelphia, U.S.	6 10	11 45	347 42	20 40	Major axis } Radiant space oval, or oblong; about 50° by 30° [see No. 32. A. J. S.]
					5 16	47 12	
95*	Prof. Bellucci	Perugia, Italy	7 0	10 0	24 27.5	43 42	Extreme points of a linear radiant region [centre at R.A. 25° 7, N. Decl. 42° 5. D.]
96	F. Denza	Moncalieri, Piedmont, Italy	6 0	10 0	25 29 34	38 46 54	
97	Prof. Missaghi	Cagliari, Sardinia, Italy	8 0	8 30	[20 50]		Radiant in the region between Cassiopeia, Perseus, and Andromeda [centre of this space near ν Persei. D.]
98	Sig. P. Ovado	Savigliano, Piedmont, Italy	at	9 0	[25 40]		
99	Prof. A. Gillieron	Ste Croix, Switzerland	Evening and night		[47 49]		Radiating from about the direction of the constellation Perseus [position at α , Persei. W.]
100	M. Bourdeau	Pau, France	6 30	10 30	[47 49]		

Radiant centre in Perseus : few unconformable meteors [position as in the last observation. C. R., No. 23].